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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Jorg Peter

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FOLEY AND LARDNER LLP  
SUITE 500  
3000 K STREET NW  
WASHINGTON, DC 20007

EXAMINER

CHAO, ELMER M

ART UNIT

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3737

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/517,637	<b>Applicant(s)</b> PETER, JORG	
	<b>Examiner</b> ELMER CHAO	<b>Art Unit</b> 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 4/13/2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 22-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 22-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 4/13/2009 has been entered.

### ***Claim Objections***

2. **Claims 23-27 and 29-41** are objected to because of the following informalities:

Regarding **claims 23, 24, 25, and 26**, it is unclear what further steps in the method are set forth.

Regarding **claims 27**, it is unclear how the detector set forth in the claim 27 is related to the detectors of claim 22.

Regarding **claim 29**, it is unclear what is meant by "the camera at 1<sup>st</sup> detector".

Regarding **claims 31, 32, 34, and 38**, it's unclear how the cameras/SPECT detector and layer set forth in the claims are related to the camera/SPECT detector and layer set forth in claim 29.

Regarding **claims 33 and 36**, it is unclear what further structure has been set forth.

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Regarding **claim 41**, "NIRF" should be defined.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 22 and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Combs et al. (U.S. 6,280,703 B1) in view of Nelson et al. (U.S. 4,969,175). Combs et al. teach an imaging method, comprising: simultaneously (claim 7) or alternately (claim 8) determining in vivo distributions of bioluminescent and/or fluorescent markers and radioactive markers (claim 1), wherein the distribution of the bioluminescent and/or fluorescent markers is determined by separate detection of photons having a first average energy, which are emitted by the bioluminescent and/or fluorescent markers (claim 1, part i), by at least one first detector and wherein the distribution of the radioactive markers is determined by separate detection of photons having a second average energy, which are emitted by the radioactive markers (claim 1, part ii), by at least one second detector, wherein the at least one first detector and the at least one second detector are fixedly arranged in a specific spatial arrangement relative to each other (some determined spatial arrangement would be necessary, especially in the case of simultaneous detection).

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Combs et al. teach the limitations as discussed above but fail to explicitly teach the detectors placed at identical projection angles. However, in the field of multiple energy x-ray imaging, Nelson et al. teach imaging at two different energy levels at the same projection angle (col. 4, lines 38-42). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to perform both determine the distributions of the markers at the same projection angle in order to properly compare the detected energies relative to the part being imaged (for motivation see col. 4, lines 38-42).

5. **Claims 23 and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Combs et al. in view of Nelson et al. as applied to claim 22 above, and further in view of Rubinstein et al. (U.S. 6,757,554 B2). Combs et al. and Nelson et al. teach the limitations as discussed above but fail to explicitly teach a layer used to transmit or reflect photons according to their energy level. However, in the field of fluorescent imaging, Rubinstein et al. teach providing a filter (col. 8, lines 43-50). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to provide a layer for each the detectors as it is functionally equivalent to a filter in order to minimize background emissions and only allow the intended range of emissions energies to pass (for motivation see col. 8, lines 45-50).

6. **Claim 25** is rejected under 35 U.S.C. 103(a) as being unpatentable over Combs et al. in view of Nelson et al. as applied to claim 22 above, and further in view of Bryan et al. (U.S. 6,232,107 B1). Combs et al. and Nelson et al. teach the limitations as discussed above but fail to explicitly teach using green fluorescent proteins. However,

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in the field of using in-vivo markers, Bryan et al. teach using green fluorescent proteins (Para [0025]). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to include using fluorescent proteins in order follow the migration and colonization progresses of tumor cells (for motivation see Para [0025] second and third sentences).

7. **Claim 26** is rejected under 35 U.S.C. 103(a) as being unpatentable over Combs et al. in view of Nelson et al. as applied to claim 22 above, and further in view of Turner (U.S. 2003/0101466 A1). Combs et al. and Nelson et al. teach the limitations as discussed above but fail to explicitly teach detecting Indium-111 using SPECT.

However, in the field of using radioactive markers, Turner teaches using SPECT to detect Indium-111 among other listed radioactive markers (Para [0027], first sentence, second to last sentence). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use SPECT imaging to detect Indium-111 in order to detect cancer cells (for motivation see abstract).

8. **Claims 27** is rejected under 35 U.S.C. 103(a) as being unpatentable over Combs et al. in view of Nelson et al., further in view of Turner as applied to claim 22 above, and further in view of Voirin et al. (U.S. 6,312,961 B1). Combs et al., Nelson et al., and Turner teach the limitations as discussed above but fail to explicitly teach the fluorescent markers being detected by a CCD camera. However, in the field of fluorescent imaging, Voirin et al. teach a CCD array to detect fluorescent emissions (col. 6, lines 10-39). Therefore, it would have been obvious to a person of ordinary skill in

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the art at the time of the invention to use a CCD array to detect fluorescent emissions in order to achieve a large enough number of pixels (for motivation see col. 6, lines 24-29).

9. **Claims 29 and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Combs et al. in view of Nelson et al., further in view of Turner, further in view of Voirin et al., and further in view of Rubinstein et al. (U.S. 6,757,554 B2).

Regarding **claims 29 and 30**, Combs et al., Nelson et al., Turner, and Voirin et al. teach the limitations as discussed above but fail to explicitly teach a layer used to transmit or reflect photons according to their energy level. However, in the field of fluorescent imaging, Rubinstein et al. teach providing a filter (col. 8, lines 43-50). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to provide a layer for each the detectors as it is functionally equivalent to a filter in order to minimize background emissions and only allow the intended range of emissions energies to pass (for motivation see col. 8, lines 45-50).

10. **Claims 31-34 and 36-41** are rejected under 35 U.S.C. 103(a) as being unpatentable over Combs et al. in view of Nelson et al., further in view of Turner, further in view of Voirin et al., further in view of Rubinstein et al. as applied to claim 29 above, and further in view of Rabito et al. (U.S. 5,647,363). Combs et al., Nelson et al., Turner, Voirin et al., and Rubinstein et al. teach the limitations as discussed above but fail to explicitly teach the different configurations and arrangements of the SPECT and CCD cameras. However, in the same field of endeavor, Rabito et al. teach a configuration of four detectors (see fig. 8), wherein the detectors can be radioactive and fluorescent detectors (col. 3, lines 24-37). Therefore, it would have been obvious to a person of

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ordinary skill in the art at the time of the invention to include using different configurations of the SPECT and CCD cameras as a matter of design choice which depends on the area being imaged or the information being acquired.

11. **Claim 35** is rejected under 35 U.S.C. 103(a) as being unpatentable over Combs et al. in view of Nelson et al., further in view of Turner, further in view of Voirin et al., further in view of Rubinstein et al. as applied to claim 29 above, further in view of Rabito et al. as applied to claim 34 above, and further in view of Matsuzaki et al. (U.S. 2002/0042566 A1). Combs et al., Nelson et al., Turner, Voirin et al., and Rubinstein et al., and Rabito et al. teach the limitations as discussed above but fail to explicitly teach using a position sensor. However, in the field of medical imaging, Matsuzaki et al. teach using a position sensor (Para [0096]). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify to include a position sensor in order to track a subject (for motivation see Para [0096]).

### ***Response to Arguments***

12. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELMER CHAO whose telephone number is (571)272-0674. The examiner can normally be reached on Mon-Thurs 11am-9pm.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on (571)272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ruth S. Smith/  
Primary Examiner, Art Unit 3737

/E. C./  
Examiner, Art Unit 3737